𝒯𝓁𝑒

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,493	11/26/2003	Anand A. Kekre	VRT0062P1US	9536

60429　　7590　　02/12/2007		EXAMINER	
CSA LLP		SONG, JASMINE	
4807 SPICEWOOD SPRINGS RD.			
BLDG. 4, SUITE 201		ART UNIT	PAPER NUMBER
AUSTIN, TX 78759		2188	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

		Application No.	Applicant(s)
Office Action Summary		10/723,493	KEKRE ET AL.
		Examiner	Art Unit
		Jasmine Song	2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *amendment filed on10/10/06*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,9-15 and 19-30* is/are rejected.

7)☒ Claim(s) *6,8 and 16-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date <u>06/26/2006</u>.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Double Patenting

1.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees.   A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2.   Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/436,354. Although the conflicting claims are not identical, they are not patentably distinct from each other because a volume to store data on is a type of storage volume; furthermore taken in its broadest possible definition anything stored on a volume is data.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Instant Application: 10/723,493 Claim ------------------ (Limitation)	Co-pending Application: 10/436,354 Claim ------------------ (Limitation)

Instant Application: 10/723,493 Claim ------------------ (Limitation)	Co-pending Application: 10/436,354 Claim ------------------ (Limitation)
1 – (a) A method comprising:	1 – (a) A method comprising:
1 – (b) creating a storage object corresponding to a data volume	1 – (b) creating a storage object corresponding to a storage volume
1 – (c) wherein said storage object comprises a point-in-time copy of said data volume	1 – (c) wherein said storage object comprises a point-in-time copy of said storage volume
1 – (d) and a data volume map; and	1 – (d) and a storage volume map; and
1 – (e) replicating said data volume utilizing said storage object	1 – (e) replicating said storage volume using said storage object

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-5,7,9-15,19-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Green et al. US PGPUB 2003/0167380, in view of Kisley., US

2005/0027748 A1.

In regards to claim 1, Green discloses a method comprising:

creating a storage object corresponding to a storage volume in figure 20, wherein

said storage object comprises a point-in-time copy of said storage volume and a storage

volume map in paragraph 131; and Applicant's disclosure states in paragraph 23 "...and

a "snappoint" storage object including a point-in-time copy 216 or "snapshot" of said

primary storage volume 210a..." and in paragraph 27 "A snapshot volume is a point-in-

time copy of another volume (e.g., a primary storage volume). Therefore Green's

snapshot is equivalent to applicant's point-in-time copy. Green does not clearly teach

replicating the storage volume. However, Kisley clearly teaches replicating the storage

volume (section 0023).

It would have been obvious to the ordinary skill in the art at the time the invention

was made to utilize the teachings of Kisley into Green's computer system such as

replicating the storage volume because it will increase information availability by

maintaining duplicate copies (section 0002 of Kisley). According, one of ordinary skill in

the art would have recognized this and concluded that they are from the same field of

endeavor. This would have motivated one of ordinary skill in the art to implement the

above combination for the advantages set forth above.

In regards to claim 2, Kisley discloses replicating said storage volume comprises,

periodically replicating said storage volume (it is taught as synchronizes the replication

target with the replication source, section 0023, last two lines).

In regards to claim 3, Green discloses creating a storage object comprises,

creating a storage object corresponding to said storage volume, wherein said

storage object comprises a virtual point-in-time copy of said storage volume in figure 3

element 352. According to applicant's disclosure (paragraph 27) a virtual point-in-time

copy is an "instant snapshot", and such instant snapshots can be space optimized such

that only the data modified in the base storage volume or the snapshot itself is stored in

the snapshot. Green's snapshot's 352, 354 and 356 show this functionality.

In regards to claim 4, Green discloses said creating a storage object comprises

creating a first storage object corresponding to a first storage volume in figure 44

element 4412, wherein said first storage object comprises a first point-in-time copy of

said first storage volume and a first storage volume map in paragraph 131, and

said replicating said storage volume comprises copying data from said first point-

in-time copy of said first storage volume to a second storage volume in figure 44

element 4414.

In regards to claim 5, Kisley teaches synchronizing the first point-in-time copy of

the first storage volume and the second storage volume (see abstract, last few lines and

section 0070).

In regards to claim 7, Green discloses identifying a first set of one or more

modified regions of said first storage volume using said first storage volume map in

figure 3 element 342.

In regards to claim 9, Green discloses creating a storage object further

comprises, creating a second storage object corresponding to said first storage volume

in response to said copying in figure 3 element 354.

In regards to claim 10, Green discloses creating a second storage object comprises, refreshing said first point-in-time copy of said first storage volume; and

creating a second storage object corresponding to said first storage volume in response to said refreshing, wherein said second storage object comprises said first point-in-time copy of said first storage volume and a second storage volume map in figure 5 elements 530 and 540 and figure 36 header and index also in figure 3 transition from element 243 to 344.

In regards to claim 11, Green discloses identifying a second set of one or more modified regions of said first storage volume using said second storage volume map in figure 3 element 344.

In regards to claim 12, Green discloses copying data from said first point-in-time copy comprises, copying data corresponding to said first set of one or more modified regions of said first storage volume from said first point-in-time copy of said first storage volume to said second storage volume using said first storage volume map in figure 2 elements 252, 254, 256 derived from element 235.

In regards to claim 13, Green discloses creating a second storage object comprises,

creating a second storage object corresponding to said first storage volume

wherein said second storage object comprises a second point-in-time copy of said first

storage volume and a second storage volume map in figure 3 element 354.

In regards to claim 14, Green discloses identifying a second set of one or more

modified regions of said first storage volume using said second storage volume map in

figure 3 element 344.

In regards to claim 15, Green discloses copying data from said first point-in-time

copy comprises,

copying data corresponding to said first set of one or more modified regions of

said first storage volume from said second point-in-time copy of said first storage

volume to said second storage volume using said first storage volume map figure 3

element 352 being stored as figure 2 element 252.

In regards to claim 19, Green discloses an apparatus comprising:

means for creating a storage object corresponding to a storage volume in figure

20, wherein said storage object comprises a point-in-time copy of said storage volume

and a storage volume map in paragraph 131; and Applicant's disclosure states in

paragraph 23 "...and a "snappoint" storage object including a point-in-time copy 216 or

"snapshot" of said primary storage volume 210a..." and in paragraph 27 "A snapshot

volume is a point-in-time copy of another volume (e.g., a primary storage volume).

Therefore Green's snapshot is equivalent to applicant's point-in-time copy. Green does

not clearly teach replicating the storage volume. However, Kisley clearly teaches

replicating the storage volume (section 0023).

It would have been obvious to the ordinary skill in the art at the time the invention

was made to utilize the teachings of Kisley into Green's computer system such as

replicating the storage volume because it will increase information availability by

maintaining duplicate copies (section 0002 of Kisley). According, one of ordinary skill in

the art would have recognized this and concluded that they are from the same field of

endeavor. This would have motivated one of ordinary skill in the art to implement the

above combination for the advantages set forth above.

In regards to claim 20, Green discloses said means for creating a storage object

comprises means for creating a first storage object corresponding to a first storage

volume in figure 44 element 4412, wherein said first storage object comprises a first

point-in-time copy of said first storage volume and a first storage volume map in

paragraph 131, and

said means for replicating said storage volume comprises means for copying

data from said first point-in-time copy of said first storage volume to a second storage

volume in figure 44 element 4414.

In regards to claim 21, Green discloses means for identifying a first set of one or more modified regions of said first storage volume using said first storage volume map in figure 3 element 342.

In regards to claim 22, Green discloses said means for creating a storage object further comprises, means for creating a second storage object corresponding to said first storage volume in figure 3 element 354.

In regards to claim 23, Green discloses said means for creating a second storage object comprises,

means for refreshing said first point-in-time copy of said first storage volume; and

means for creating a second storage object corresponding to said first storage volume, wherein said second storage object comprises said first point-in-time copy of said first storage volume and a second storage volume map in figure 5 elements 530 and 540 and figure 36 header and index also in figure 3 transition from element 243 to 344.

In regards to claim 24, Green discloses a machine-readable medium having a plurality of instructions executable by a machine embodied therein, wherein said plurality of instructions when executed cause said machine to perform a method comprising:

creating a storage object corresponding to a storage volume in figure 20, wherein said storage object comprises a point-in-time copy of said storage volume and a storage volume map in paragraph 131; and Applicant's disclosure states in paragraph 23 "...and a "snappoint" storage object including a point-in-time copy 216 or "snapshot" of said primary storage volume 210a..." and in paragraph 27 "A snapshot volume is a point-in-time copy of another volume (e.g., a primary storage volume). Therefore Green's snapshot is equivalent to applicant's point-in-time copy. Green does not clearly teach replicating the storage volume. However, Kisley clearly teaches replicating the storage volume (section 0023).

It would have been obvious to the ordinary skill in the art at the time the invention was made to utilize the teachings of Kisley into Green's computer system such as replicating the storage volume because it will increase information availability by maintaining duplicate copies (section 0002 of Kisley). According, one of ordinary skill in the art would have recognized this and concluded that they are from the same field of endeavor. This would have motivated one of ordinary skill in the art to implement the above combination for the advantages set forth above.

In regards to claim 25, Green discloses said creating a storage object comprises creating a first storage object corresponding to a first storage volume in figure 44 element 4412, wherein said first storage object comprises a first point-in-time copy of said first storage volume and a first storage volume map in paragraph 131, and

said replicating said storage volume comprises copying data from said first point-in-time copy of said first storage volume to a second storage volume in figure 44 element 4414.

In regards to claim 26, Green discloses identifying a first set of one or more modified regions of said first storage volume using said first storage volume map in figure 3 element 342.

In regards to claim 27, Green discloses said creating a storage object further comprises, creating a second storage object corresponding to said first storage volume in response to said copying in figure 3 element 354.

In regards to claim 28, Green discloses said creating a second storage object comprises, refreshing said first point-in-time copy of said first storage volume; and

creating a second storage object corresponding to said first storage volume in response to said refreshing, wherein said second storage object comprises said first point-in-time copy of said first storage volume and a second storage volume map in figure 5 elements 530 and 540 and figure 36 header and index also in figure 3 transition from element 243 to 344.

In regards to claim 29, Green discloses a data processing system comprising:

a storage element to store a storage volume in figure 2 element 230; and

a volume replicator in figure 2 element 220 configured to,

create a storage object corresponding to said storage volume in figure 20,

wherein said storage object comprises a point-in-time copy of said storage

volume and a storage volume map in paragraph 131; and

Applicant's disclosure states in paragraph 23 "...and a "snappoint" storage object

including a point-in-time copy 216 or "snapshot" of said primary storage volume 210a..."

and in paragraph 27 "A snapshot volume is a point-in-time copy of another volume (e.g.,

a primary storage volume). Therefore Green's snapshot is equivalent to applicant's

point-in-time copy. Green does not clearly teach replicating the storage volume.

However, Kisley clearly teaches replicating the storage volume (section 0023).

It would have been obvious to the ordinary skill in the art at the time the invention

was made to utilize the teachings of Kisley into Green's computer system such as

replicating the storage volume because it will increase information availability by

maintaining duplicate copies (section 0002 of Kisley). According, one of ordinary skill in

the art would have recognized this and concluded that they are from the same field of

endeavor. This would have motivated one of ordinary skill in the art to implement the

above combination for the advantages set forth above.

In regards to claim 30, Green discloses said volume replicator is further

configured to, create a first storage object corresponding to a first storage volume in

figure 44 element 4412, wherein said first storage object comprises a first point-in-time

copy of said first storage volume and a first storage volume map in paragraph 131, and

copy data from said first point-in-time copy of said first storage volume to a

second storage volume in figure 44 element 4414.

Allowable Subject Matter

5.   Claims 6,8,16-18 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

6.   When responding to the office action, Applicant is advised to clearly point out the

patentable novelty which he or she thinks the claims present in view of the state of the

art disclosed by the references cited or the objections made. He or she must also show

how the amendments avoid such references or objections. See 37 C.F.R. 1.111 (c).

7.   When responding to the office action, Applicants are advised to provide the

examiner with the line numbers and page numbers in the application and/or references

cited to assist examiner to locate the appropriate paragraphs.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jasmine Song whose telephone number is 571-272-

4213. The examiner can normally be reached on 7:30-5:30 (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jasmine Song

Patent Examiner

December 26, 2006